MRCA

MACH 2

ATARI 800XL/130XE

LOADING INSTRUCTIONS

i) Turn off computer and all peripherals except disk drive.
ii) Remove any cartridges. Hold down **option** key.
ii) Turn on power, program will load and run.

FIGHTER PILOT is a real-time flight simulation based upon the F15 Eagle, USAF air-superiority jet fighter. This supreme simulation offers many of the features found on modern flight simulators including 3-D view from the cockpit, fully aerobatic performance, air-to-air combat, crosswinds, turbulence, and blind landing. The program offers training modes for each option and a pilot skill rating for varying difficulty levels.

OPTIONS

To choose from menu move symbol up and down using joystick or SELECT key. Make choice by pressing fire button or OPTION Key. Take off by pressing START.

(1) Landing Practice – Your aircraft is positioned at an altitude of 1700 ft, 6 miles from touchdown at runway BASE. The undercarriage is lowered, ready for landing. Use the throttle, flaps and elevator controls to adjust your rate of descent and approach speed. Guidance may be taken from the instrument Landing System (ILS) or the Flight Computer.
Once you have landed, reduce the thrust to zero and apply the brakes.

(2) Flying Training – Your aircraft is positoned at the threshold of runway BASE, facing due North. Take off by opening the throttle, typically to 100% or full reheat, and pulling back on the joystick when you reach take-off speed.
Maximum acceleration on take-off is achieved by applying the brakes until full thrust is reached. Raise the undercarriage shortly after take-off if you intend to exceed 300 kts. Take off is possible at a lower speed with full flaps. Steer on the ground by using the rudder controls, easiest if your speed is below 10 kts.

(3) Air-to-Air Combat Practice – You are positioned 2 miles behind the enemy aircraft at the same altitude. Select Combat Mode and the 'Flight Computer' to obtain a readout of enemy bearing, range and altitude. The enemy will be flying at 550 kts and will not return fire during the dogfight.
Manoeuvre your aircraft when you see the enemy and oepn fire as he passes through your sights.

(4) Air-to-Air Combat – In this final option, you are responsible for defending the four airfields BASE, TANGO DELTA AND ZULU. Your mission begins with a scramble from runway BASE. Use your radar and flight computer to determine the location of the enemy aircraft, and after assessing his likely target, fly your aircraft on an intercept course. Visual contact will occur at less than 1 mile and less than 5000 feet altitude difference and the dogfight begins with the enemy manoeuvring to gain advance. Damage to your own aircraft is indicated by flashing of the aircraft symbol on your radar. A fourth strike by the enemy is fatal! If you wish to break-off during the dogfight because of extensive damage or no ammunition left, the enemy will cease to attack once you are over 3 miles away or more than 5000 ft altitude difference. At this stage he will lock-on to his original ground target and pursue his ultimate objective of destroying all airfields. This will leave you free to return to any remaining runway for repairs, re-armament and refuelling.

(5) Blind Landing – This option simulates landing and take-off in fog. No visual display is given whenever the aircraft is above 50 ft and the horizon is not displayed at any time. Navigate by using your radar, flight computer and map.

(6) Crosswind and turbulence – This option gives crosswind effects and random aircraft disturbances due to turbulence. Selection of this option will make flying and navigation more difficult and is recommended after a little practice.

(7) Pilot rating – Skill levels increase from trainee to ace. This feature varies the skill of the enemy pilot during combat e.g. how soon he will detect your approach, the types of manoeuvres he can execute, how quickly he can get you into his sights, and how close you have to get to shoot him down. Your pilot rating does not affect the flight characteristics of your own aircraft. Beware, an ace enemy

pilot is very mean!

CONTROLS

During flight, your aircraft is manoeuvred using the elevator, aileron and rudder controls.

The ELEVATORS are operated using back and forward on a joystick to pitch the aircraft up and down.

The AILERONS are operated by left and right on the joystick and are used to roll the aircraft left and right.

Finally, the RUDDER control uses keys Z and X for left and right rudder. The rudder gives both a heading change and a roll change. During aerobatic manoeuvres, the effectiveness of the controls will vary. For example, at near 90 degrees roll, the elevator control will have a primary effect on heading, not pitch. The aircraft will also tend to pitch nose-down when in a steep turn. Your pitch rate, roll rate and yaw (heading) rate will all increase in proportion to how long the control is applied. This feature gives a good approximation to the feel of a real aircraft.

The THROTTLE control uses keys Q and A: Q to increase engine THRUST, and A to decrease thrust. Single presses of these keys will give fine control over thrust, whilst holding down the key allows rapid increase or decrease. As well as affecting the aircraft speed, your pitch angle will vary when changing the thrust setting. The amount of thrust required to maintain a particular speed depends primarily on pitch angle and altitude. At low speeds, for example on the approach, the aircraft must adopt a nose-up altitude to maintain lift on the wings. This generates more drag and will require more thrust as a result. At higher speeds, this nose-up- attitude is no longer necessary and the same thrust will maintain a higher speed. Your maximum speed will increase with altitude because of the decreasing air density.

The FLAPS ARE ON KEYS W (up) and S (down) next to the throttle controls. The flaps are used to give a slower runway approach speed and a reduced rate of descent. The stall speed varies with flap setting, and operation of the flaps during flight will affect the pitch angle. Operation of the flaps at speeds above 472 kts will cause them to fail.

The UNDERCARRIAGE is raised and lowered using the key U. Lowering the undercarriage will have a small effect on aircraft speed.

BRAKES remain on whenever the Fire button is pressed, indicated by the panel BRAKES light. The brakes do not function when airborne.
The GUNS are fired by pressing the fire button when the aircraft is airborne after selecting COMBAT mode with the SELECT key. The ammunition status is shown at the bottom right hand corner of the instrument panel. The 3 lighting symbols above the ammo indicate that enemy aircraft are present. The number of enemy aircraft destroyed is to the right of these.
One final point. . . flying a fighter aircraft is not easy and will take a little practice – particularly air-to-air combat!

SUMMARY OF CONTROLS

Joystick LEFT and RIGHT - AILERONS
Joystick FORWARD and BACK – ELEVATORS
Z – RUDDER LEFT
X – RUDDER RIGHT
Q – Increase THRUST
A – Decrease THRUST
W – Flaps UP
S – Flaps DOWN
U – Undercarriage UP and DOWN
FIRE button – brakes (aircraft on ground).
N – Next Beacon
M – Map
OPTION – ILS/Flight Computer
FIRE button – GUNS (active only if airborne and in Combat mode)
ESC – pause on/pause off
RESET – return to menu
JOYSTICK REQUIRED – use Port 1

INSTRUMENTS

Artifical Horizon – This instrument in the centre of the panel, shows the roll angle and pitch angle of your aircraft, and is particularly useful during aerobatic manoeuvres or air-to-air combat when you will frequently lose your view of the horizon. The small aircraft symbol rotates to show your roll angle relative to the round, and the roll angle, Left or Right, is shown underneath. A roll angle over 90 degrees equates to inverted flight. The pitch angle is shown on a

"moving tape" with blue to indicate nose-up (skywards) and yellow to incate nose-down, towards the gound. 90 degrees equates to a vertical climb or dive.

Speed – To the left of the artificial horizon is your speed, in knots.

Altitude – Aircraft height, in feet

Vertical Speed Indicator, VSI – This gives you rate of climb or descent in feet per second. When your aircraft is gaining height the arrow will point upwards, and when you are losing height the arrow will point downwards. Your rate of descent on the approach should be approximately 20 ft per sec.

Flaps – Flaps may be set at any angle from zero to full. The stall speed varies from 130 kts at zero flaps, to 120 kts at full flaps.

Thrust – The engine thrust indicator is a linear scale running along the bottom of the instrument panel. The green region represents 0% to 100% engine thrust, and the striped region indicates reheat. Reheat gives a considerable boost to your thrust at the expense of heavy fuel consumption.

Radar and Compass – This is the instrument on the far left of the panel. The readout above the aircraft symbol marked HDG is your compass heading. At the bottom of the instrument is shown the bearing (BRG) and range (RNG) of the beacon on which you are currently logged. As you select the Next Beacon by pressing N, the beacon identifier will change and new range and bearing information will be displayed. The flashing cross shows the bearing of the beacon relative to your own aircraft. To fly to the beacon, bank your aircraft until your heading matches the beacon bearing. You should now see the flashing cross at the nose of the aircraft symbol on the radar.

Combat Mode – Switch to Combat Mode using SELECT. This switches on your sights, activates the guns, and locks your radar and flight computer onto the enemy. Combat mode is shown on your radar by the lighting symbol. The range bearing is now that of the enemy, and his bearing is shown as the flashing cross. Use the Flight Computer to find his altitude.

ILS/flight Computer – To the right of your altitude and VSI is a dual-purpose intrument used for landing guidance and air-to-air combat. Switch between the two modes by pressing OPTION.

(a) Instrument Landing System – This mode gives the pilot direction guidance when approaching a runway and may be demonstrated by selecting the "landing practice" option. By keeping the flashing square in the centre of the instrument, you will be flying on the correct glideslope to the runway at the correct rate of descent (3 degrees) for a good landing. As the flashing square drifts from the centre of the instrument, turn towards it and you will return to the correct approach. For example, if the square drifts left and up, bank your aircraft to the left and pull back on the joystick and the flashing square will slowly return to the centre.

(b) Flight Computer – Select the Flight Computer by pressing OPTION. This displays your precise ground position, in units of feet, North, South East or West of any runway with a beacon within a radious of 6 miles. The distances are relative to the beacon currently indicated on your radar. However, if the runway has been destroyed or it is out of range, the computer will be inactive, shown by black and yellow stripes.
The Flight Computer will also display the altitude of enemy aircraft when the radar is in combat mode. During a dogfight, try and keep your altitude roughly equal to that of the enemy, pointed to by the arrow on the flight computer.

Fuel This is a simple fuel guage showing the amount of fuel left.

Undercarriage The indicator for the undercarriage is below the fuel guage.
3 reds and UP arrow = undercarriage UP
3 greens and DOWN arrow = undercarriage DOWN

MAP – Switch beteen the map and normal visual display using key M.
Your instruments are displayed at all times enabling safe flight to continue.

PILOT'S NOTES

Take-off speed: zero flaps – 140 kts, full flaps – 130 kts
Stall speed: zero flaps – 130 kts, full flaps – 120 kts
Flaps: Vmax full flap – 352 kts Vmax any flap – 472 kts
Undercarriage: Vmax = 300 kts
Vmax on ground = 250 kts
Performance: Vmax = 802 kts, at sea level, full reheat
Vmax = 1439 kts at 60,000 ft, level flight
Ceiling: approx 65,000 ft.
Approach:

Thrust	Flaps	U/C	Pitch	VSI	Speed,kts
74%	Full	Down	+3	↓ 9	125
62%	Zero	Down	+6	↓ 12	135
			Landing: Normal	↓ 15 max	
			Undercarriage failed	↓ 8 max	

Technical Data - McDonnell Douglas F15 Eagle

Role: Air superiority fighter
Performance: Max. Speed 800 kts at sea level, (Mach 1.2) 1440 kts at 60,000 ft (Mach 2.54)
Landing speed: 130 kts
Take off run: 900 ft., 8 secs with reheat
Ceiling: 65000 ft
Initial climb rate greater than 50,000 ft/min.
Engines: 2 Pratt & Whitney F100-PW-100 turbofans
Each giving 17600 lbf thrust, dry 25000 lbf thrust, reheat
Dimensions: Wing span: 42 ft. 9 in.
Length: 63 ft 9 in.
Wing area: 608 sq. ft.
Weight: Intercept mode, full internal fuel: 41,500 lbf

All the above information is approximate and widely published. Although considerable effort has been given to achieving a realistic simulation, approximations have been made due to the limitations in programming the ATARI, and certain technical data not being available to the public.

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